

Claims:

1. A method of demodulating antenna data containing multiple signals with a dynamically reconfigurable datapath in a plurality of protocols, the method comprising the steps of:

- 5                   a)     configuring the datapath for a respective one of the protocols;
- b)     demodulating the antenna data containing multiple signals with the datapath; and
- c)     repeating steps (a) and (b) for each of the protocols.
- 10           2.     The method of Claim 1 further comprising the step of buffering the antenna data prior to step (a).
3.     The method of Claim 2 wherein the data is for multiple users and step (c) comprises repeating steps (a) and (b) for the antenna data containing multiple signals of the multiple users.
- 15           4.     The method of Claim 3 wherein the datapath is a dynamically reconfigurable communications processor and step (a) comprises configuring the processor for each of the respective protocols.
5.     The method of Claim 4 wherein each of the protocols is a communications protocol and step (b) comprises demodulating the antenna data
- 20     containing multiple signals for a respective communications protocol with the processor.

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6. The method of Claim 5 wherein step (c) further comprises buffering the output data subsequent to demodulation by the datapath.

7. A method for demodulating antenna data containing multiple signals in one of a plurality of protocols, the method comprising the steps of:

- 5 a) providing a dynamically reconfigurable datapath;
- b) receiving the antenna data containing multiple signals;
- c) configuring the datapath for one of the protocols;
- d) demodulating the signals contained in the antenna data with the datapath;
- 10 e) reconfiguring the datapath for another one of the protocols; and
- f) demodulating the signals contained in the antenna data with the datapath.

8. The method of Claim 7 further comprising the step of:

- 15 g) repeating steps (c) - (f) for each of the protocols.

9. The method of Claim 8 further comprising the steps of:

- h) receiving new data; and
- i) repeating steps (c) - (g) for the new data.

10. The method of Claim 9 wherein the datapath is a reconfigurable communications processor and steps (c) and (e) comprise reconfiguring the processor for each of the protocols.

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11. The method of Claim 10 wherein steps (d) and (f) comprise demodulating the data with the communications processor configured for the desired protocol.

12. The method of Claim 7 wherein the antenna data containing multiple signals transmitted in multiple protocols is for multiple users; and step (b) comprises receiving the data for multiple users; and step (d) comprises demodulating the signals contained in the antenna data for the users prior to reconfiguring the datapath in step (e).

13. The method of Claim 12 further comprising repeating steps (c) - (f) for all of the data of all of the users.

14. A method of demodulating signals contained in antenna data in a plurality of protocols for multiple users, the method comprising the steps of:

- a) buffering the antenna data;
- b) determining the protocol to be demodulated;
- 15 c) configuring the datapath for the protocol determined in step (b);
- d) reading the antenna data from the buffer;
- e) demodulating the signals contained in the antenna data read from the buffer with the datapath;
- 20 f) outputting the data to an output buffer;
- g) repeating steps (e) - (h) for the data of each of the users; and
- h) repeating steps (b) - (i) for each of the protocols.

15. The method of Claim 14 wherein the datapath is a dynamically reconfigurable communications processor.

16. The method of Claim 14 further comprising the step of repeating steps (a) - (h) for a new set of antenna data.

5 17. A system for demodulating signals contained in antenna data in a plurality of protocols for multiple users, the system comprising:

an input buffer for receiving the antenna data;

a dynamically reconfigurable datapath operative to demodulate the signals contained in the antenna data in the plurality of protocols;

10 a controller in electrical communication with the datapath, the controller operative to configure the dynamically reconfigurable datapath for another protocol after the data of each of the users has been demodulated; and

an output buffer for storing the demodulated data.

15 18. The system of Claim 17 wherein the input buffer is operative to repeatedly present the antenna data of the users to the datapath after each reconfiguration by the controller.

19. The system of Claim 18 wherein the dynamically reconfigurable datapath is a communications processor.

20 20. The system of Claim 19 wherein the controller is configured to demodulate data for wireless communications.

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21. The system of Claim 20 wherein the input and output buffers are memory devices.

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